

**Notice of Allowability**

Application No.

10/606,134

Examiner

Elias Desta

Applicant(s)

FRANCOM ET AL.

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment filed on March 14, 2005.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☒ The drawings filed on 14 March 2005 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## Detailed Action

### Response to Applicant's Remarks

#### Drawing/Specification

1. The Examiner accepts the amendment to the objection of the drawing, specification, and claims.

#### Claim rejection

2. Applicant's arguments, see amendment, filed on March 14, 2005, with respect to claims 20 and 21 have been fully considered and are persuasive. The rejection of claims 20 and 21 has been withdrawn.

#### Allowance

3. Claims 1-21 are allowed. The following is an examiner's statement of reasons for allowance

In reference to claims 1, 20 and 21: Shiratori (U.S. PAP 2002/0095643) teaches method and apparatus for revising wiring of a circuit to prevent electro-migration (see Shiratori, page 1, paragraph 2). The method provides a wire design method that prevents wires from melting due to the influence of electro-migration caused by an excessive current density in the semiconductor integrated circuit (see Shiratori, page 1, paragraph 9). The method includes a current density error

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correction mechanism where the excessive current density is reduced by widening the width of the wire that connects the source output terminal and the wiring branch point (see Shiratori, page 3, paragraphs 44-45).

Unlike Shiratori, the claimed invention is a method for analyzing power in semiconductor. The method includes determining a plurality of current densities wherein each current density is associated with one portion of a plurality of portions of a component, determining a plurality of wire densities wherein each wire density is associated with one region of a plurality of regions of the component, and comparing the plurality of the current densities and the plurality of power wire densities.

Citation of pertinent prior art:

- Roething et al. (U.S. Patent 6,028,440) teaches estimation of voltage drop and current densities in ASIC power supply mesh.
- Adler et al. (IMS Hanover Article, 'A Current Driven Routing and Verification Methodology for Analog Applications') teaches a methodology for current driven routing and layout verification for analog applications used to avoid defects due electro-migration.
- Hodgdon et al. (IEEE Article, 'Computation of the Current Density in Nonlinear Materials Subjected to Large Current Pulses') teaches finite difference and finite element method to characterize the behavior of

current densities in the wire is predicted to be in agreement with the experimental outcomes.

The remaining claims are dependent upon claim 1 and contain further limitations.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (571)-272-2214. The examiner can normally be reached on M-Thu (8:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9306 for regular communications and After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)-272-1750.

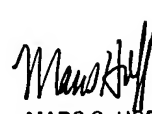
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Examiner  
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-Ed

May 23, 2005



MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
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